Amendments to the Claims:

Claims 1 – 38 (Canceled)

39. A hub drive system for a vehicle, comprising:

a) a tubular housing suspended by the vehicle and having an inboard and an outboard end;

b) a wheel hub rotationally mounted on the outboard end of the housing;

c) an electric motor disposed in the inboard end of housing;

d) a planetary gearbox, disposed in the outboard end of the housing and driven by the motor through a hollow primary shaft;

e) an output flange of the gearbox operatively connected to the hub,

f) a casing for the motor;

g) a stator in the casing;

h) a hollow rotor rotationally mounted in the casing and operatively connected to the primary shaft of the gearbox;

i) a gallery defined between the housing and casing and into which a lubricant for the gearbox is injectable to cool the motor;

j) a passage in the casing to deliver lubricant from said gallery to said hollow rotor to further cool the motor; and

k) said rotor being arranged to deliver said oil to the primary shaft to lubricate the gearbox.

40. A drive system as claimed in claim 39, in which the motor casing has a substantially cylindrical outboard end sealed and centred in the housing by an O-ring.

41. A drive system as claimed in claim 39, in which the casing is a sliding fit in the housing to permit inboard access to the motor without any need for a wheel removal.

42. A hub drive system for a vehicle, comprising:

a) a tubular housing suspended by the vehicle and having inboard and outboard open ends;

b) a wheel hub rotationally mounted through hub bearings on the outboard end of the housing;

c) an electric motor disposed in the inboard end of the housing;

d) a planetary gearbox, disposed in the outboard end of the housing within the radial confines of said bearings and driven by the motor through a primary shaft;

e) an output flange of the gearbox detachably connected to the hub and closing the outboard end of the housing; wherein

f) without removing the wheel, the motor is removable inboard of the housing and the gearbox is dismantleable primarily outboard of the housing.

43. A drive system as claimed in claim 42, in which the primary shaft of the gearbox is rotationally supported in the hub.

44. A drive system as claimed in claim 43, in which the other, inboard end of the primary shaft is journalled in the motor.

45. A drive system as claimed in claim 42, in which the motor has a casing, a stator fixed in the casing and a rotor rotationally journalled in the casing.

46. A drive system as claimed in claim 43, in which the primary shaft is journalled in the motor through the rotor.

47. A drive system as claimed in claim 42, in which the gearbox comprises two stages of gear reduction and a gear change mechanism.

48. A drive system as claimed in claim 47, in which the gear change mechanism comprises a shift ring for an intermediate planet gear ring rotationally mounted on the primary shaft and driving the hub, which shift ring is lockable to one of the primary shaft and the housing by a shift element.

49. A drive system as claimed in claim 48, in which the planet gear ring drives the hub through one or two fixed ratio gear sets.

50. A drive system as claimed in claim 48, in which the shift mechanism comprises a shift element slidable between two positions, in a first position locking the shift ring to a housing gear ring, and in a second position locking the shift gear ring to a primary shaft ring.

51. A drive system as claimed in claim 50, in which the shift element includes a ferromagnetic disc axially shiftable by solenoids mounted in the housing.

52. A drive system as claimed in claim 50, in which the shift element comprises a magnetic sleeve shiftable by an induction coil mounted in the housing.

53. A drive system as claimed in claim 47, in which the gear change mechanism further includes active speed control of the motor during gear change to adjust dynamically the motor speed to the requisite speed commensurate with the desired gear ratio.

54. A drive system as claimed in claim 53, in which said shift element is in a neutral position intermediate said first and second positions in which neither said housing gear ring nor said primary shaft gear ring is locked to the shift ring.

55. A drive system as claimed in claim 54, in which said active speed control comprises a motor speed sensor, a hub speed sensor and a control arrangement to accelerate or decelerate the motor in dependence upon which gear is selected.

56. A drive system as claimed in claim 55, in which said active speed control is in software.

57. A drive system as claimed in claim 39, in which a brake disc is mounted on the hub and brake callipers are mounted on the housing.

58. A drive system as claimed in claim 42, in which a brake disc is mounted on the hub and brake callipers are mounted on the housing.

59. A hub drive system for a vehicle, comprising:

a) a tubular housing suspended by the vehicle and having inboard and outboard open ends;

b) a wheel hub rotationally mounted through hub bearings on the outboard end of the housing;

c) an electric motor disposed in the inboard end of the housing and comprising a stator fixed with respect the housing and a rotor journalled for rotation in the housing;

d) a planetary gearbox, disposed in the outboard end of the housing and driven by the motor through a primary shaft coaxial with the rotor;

e) an output flange of the gearbox detachably connected to the hub and closing the outboard end of the housing; and

f) a gear change mechanism between the rotor and a first stage gear reduction of the gearbox to provide three options:

i) to interpose a further gear reduction stage ahead of said first stage reduction;

ii) to disconnect drive of the motor from the gearbox; and

iii) to isolate said further gear reduction stage and connect drive from the motor direct to said first stage.

60. A drive system as claimed in claim 59, in which the gear change mechanism comprises a shift element to effect gear change.

61. A drive system as claimed in claim 60, in which:

an intermediate planet ring is journalled for rotation on the primary shaft and has a shift ring fixed thereon;

said shift element is movable between two positions, in a first of which it locks the shift ring to a primary shaft ring, locked on the primary shaft, and in a second of which it locks the shift ring to a housing ring, locked with respect to the housing;

an intermediate sun gear, fixed on the primary shaft, transmits drive through planets mounted on an intermediate planet carrier;

said drive is without speed reduction when the shift ring is in said first position and said intermediate planet ring rotates at primary shaft speed, and, when the shift ring is in said second position, said drive is with speed reduction via said planets rolling between said intermediate sun gear and intermediate planet ring; and

said intermediate sun gear, intermediate planet ring and planets constitute said further gear reduction stage.

62. A drive system as claimed in claim 61, in which said shift element has a third, neutral position in which the shift ring is locked to neither the primary shaft ring nor the housing ring.

63. A drive system as claimed in claim 62, in which said neutral position is between said first and second positions, said shift element moving coaxially with respect to said primary shaft.

64. A drive system as claimed in claim 60, in which said shift element is a ring surrounding said primary shaft, is provided with ferromagnetic elements and is disposed within the confines of a gear shift coil fixed in the housing and adapted to move the shift element by magnetic interaction.

65. A drive system as claimed in claim 59, in which said first stage gear reduction comprises a first sun gear, driven by the motor, planets, carried by a first planet carrier and driving said output flange, and a first planet ring fixed in the housing.

66. A drive system as claimed in claim 65, in which said first sun ring is formed on said intermediate planet carrier.

67. A drive system as claimed in claim 59, in which the gearbox has a second stage reduction after said first stage and directly driving said output flange.

68. A drive system as claimed in claim 67, in which said second stage comprises a second sun gear, driven by the first stage gear reduction, planets, carried by said output flange, and a second planet ring fixed in the housing.

69. A drive system as claimed in claim 65, in which said second stage comprises a second sun gear, driven by the first stage gear reduction, planets, carried by said output flange, and a second planet ring fixed in the housing, and in which said second sun ring is formed on said first planet carrier.

70. A drive system as claimed in claim 39, in which an air tube is disposed in the rotor and primary shaft to deliver air from a port in the casing to a port in the hub for controlling tyre pressure of a wheel mounted on the hub.

71. A drive system as claimed in claim 70, in which the air tube is arranged to increase the rotor contact surface area per unit volume of lubricant flowing past the rotor at any given instant.

72. A drive system as claimed in claim 70, in which said air tube is fixed in the output flange, passages therein communicating with a port on the output flange to permit connection of a conduit to a tyre valve of a wheel mounted on the hub.

73. A drive system as claimed in claim 72, in which said air tube is rotationally mounted in an inboard end plate of the motor, passages therein communicating with a port on the end plate to permit connection of a conduit from a source of air under sufficient pressure to control inflation of the tyre, a rotary seal being disposed between said air tube and end plate.

74. A drive system as claimed in claim 73, in which said seal separates said passages in the endplate that communicate the air tube with said port on the end plate from said passage in the casing that delivers lubricant from said gallery to said hollow rotor.

75. A drive system as claimed in claim 42, in which an air tube is disposed in the rotor and primary shaft to deliver air from a port in the casing to a port in the hub for controlling tyre pressure of a wheel mounted on the hub.

76. A drive system as claimed in claim 75, in which said air tube is fixed in the output flange, passages therein communicating with a port on the output flange to permit connection of a conduit to a tyre valve of a wheel mounted on the hub.

77. A drive system as claimed in claim 76, in which said air tube is rotationally mounted in an inboard end plate of the motor, passages therein communicating with a port on the end plate

to permit connection of a conduit from a source of air under sufficient pressure to control inflation of the tyre, a rotary seal being disposed between said air tube and end plate.

78. A drive system as claimed in claim 59, in which an air tube is disposed in the rotor and primary shaft to deliver air from a port in the casing to a port in the hub for controlling tyre pressure of a wheel mounted on the hub.

79. A drive system as claimed in claim 78, in which said air tube is fixed in the output flange, passages therein communicating with a port on the output flange to permit connection of a conduit to a tyre valve of a wheel mounted on the hub.

80. A drive system as claimed in claim 79, in which said air tube is rotationally mounted in an inboard end plate of the motor, passages therein communicating with a port on the end plate to permit connection of a conduit from a source of air under sufficient pressure to control inflation of the tyre, a rotary seal being disposed between said air tube and end plate.

81. A hub drive system for a vehicle, comprising:

a) a tubular housing suspended by the vehicle and having inboard and outboard open ends;

b) a wheel hub rotationally mounted through hub bearings on the outboard end of the housing;

c) an electric motor disposed in the inboard end of housing;

d) a planetary gearbox, disposed in the outboard end of the housing within the radial confines of said bearings and driven by the motor through a hollow primary shaft;

e) an output flange of the gearbox operatively connected to the hub and closing the outboard end of the housing,

f) a casing for the motor;

g) a stator in the casing;

h) a hollow rotor rotationally mounted in the casing and operatively connected to the primary shaft of the gearbox;

i) a gallery defined between the housing and casing and into which a lubricant for the gearbox is injectable to cool the motor;

j) a passage in the casing to deliver lubricant from said gallery to said hollow rotor to further cool the motor; and

k) said rotor being arranged to deliver said oil to the primary shaft to lubricate the gearbox; wherein

l) without removing the wheel, the motor is removable inboard of the housing and the gearbox is dismantleable primarily outboard of the housing.

82. A drive system as claimed in claim 81, further comprising:

m) a gear change mechanism between the rotor and a first stage gear reduction of the gearbox to provide three options:

i) to interpose a further gear reduction stage ahead of said first stage reduction;

ii) to disconnect drive of the motor from the gearbox; and

iii) to isolate said further gear reduction stage and connect drive from the motor direct to said first stage.

83. A hub drive system for a vehicle, comprising:

a) a tubular housing suspended by the vehicle and having an inboard and an outboard end;

b) a wheel hub rotationally mounted on the outboard end of the housing;

c) an electric motor disposed in the inboard end of housing;

d) a planetary gearbox, disposed in the outboard end of the housing and driven by the motor through a hollow primary shaft;

e) an output flange of the gearbox operatively connected to the hub,

f) a casing for the motor;

g) a stator in the casing;

h) a hollow rotor rotationally mounted in the casing and operatively connected to the primary shaft of the gearbox;

i) a gallery defined between the housing and casing and into which a lubricant for the gearbox is injectable to cool the motor;

j) a passage in the casing to deliver lubricant from said gallery to said hollow rotor to further cool the motor;

k) said rotor being arranged to deliver said oil to the primary shaft to lubricate the gearbox; and

l) a gear change mechanism between the rotor and a first stage gear reduction of the gearbox to provide three options:

i) to interpose a further gear reduction stage ahead of said first stage reduction;

ii) to disconnect drive of the motor from the gearbox; and

iii) to isolate said further gear reduction stage and connect drive from the motor direct to said first stage.

84. A drive system as claimed in claim 83, wherein:

m) the inboard and outboard housing ends are open;

n) the hub is rotationally mounted through hub bearings on the outboard end of the housing;

o) the gearbox is disposed within the radial confines of said bearings;

p) the output flange of the gearbox closes the outboard end of the housing; and

q) without removing the wheel, the motor is removable inboard of the housing and the gearbox is dismantleable primarily outboard of the housing.

85. A hub drive system for a vehicle, comprising:

a) a tubular housing suspended by the vehicle and having inboard and outboard open ends;

b) a wheel hub rotationally mounted through hub bearings on the outboard end of the housing;

c) an electric motor disposed in the inboard end of the housing and comprising a stator fixed with respect the housing and a rotor journalled for rotation in the housing;

d) a planetary gearbox, disposed in the outboard end of the housing within the radial confines of said bearings and driven by the motor through a primary shaft coaxial with the rotor;

e) an output flange of the gearbox detachably connected to the hub and closing the outboard end of the housing; wherein

f) without removing the wheel, the motor is removable inboard of the housing and the gearbox is dismantleable primarily outboard of the housing; and

g) a gear change mechanism between the rotor and a first stage gear reduction of the gearbox to provide three options:

i) to interpose a further gear reduction stage ahead of said first stage reduction;

ii) to disconnect drive of the motor from the gearbox; and

iii) to isolate said further gear reduction stage and connect drive from the motor direct to said first stage.

86. A vehicle incorporating a hub drive system as claimed in claim 39.

87. A vehicle incorporating a hub drive system as claimed in claim 42.

88. A vehicle incorporating a hub drive system as claimed in claim 59.

89. A vehicle incorporating a hub drive system as claimed in claim 81.

90. A vehicle incorporating a hub drive system as claimed in claim 83.

91. A vehicle incorporating a hub drive system as claimed in claim 85.